



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

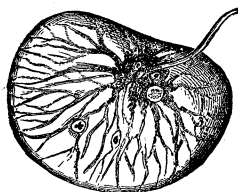
We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

THE PHOSPHORESCENCE OF THE SEA.

THE *Noctiluca* are little crystal balls of about the size of a pin's head, which, under the microscope, present the appearance here figured. The transparence of its struc-



Noctiluca. FROM CARPENTER.

ture permits an easy investigation. Not a fibre is to be seen, unless, with De Blainville, we consider the transverse markings of the tail in the light of muscular fibres, a supposition which is very questionable. In the neighborhood of this tail there is usually a mass of food, or the indigestible remains of food. Not that we are to look for a stomach in this animal,—nothing of the kind exists; but in lieu thereof we find, as in Infusoria, a number of *vacuolæ*, or assimilating cavities, which appear and disappear, according to need, formed out of the contractile substance which is seen radiating in filaments all through the substance of the animal, and which M. Quatrefages likens to the *sarcode* described by Dujardin. In this curious animal, not a trace has been discovered of vessels, nerves, senses, or indeed of any “organs” whatever. It is a mass of animated jelly, with a mobile tail. Its mode of reproduction has been variously expounded, but the observations of Quatrefages and Krohn seem placed beyond a doubt by those recorded in Mr. Brightwell’s paper, proving that they multiply by spontaneous subdivision. No one has yet observed anything like reproduction by means of ova.

To these *Noctiluca* the sea owes much of that brilliant phosphorescence which at all times has been the marvel of

travellers. Place your vase in a darkened room, and strike the glass, or agitate the water, and you will be delighted with the spectacle presented. From every part brilliant sparks appear and disappear, until at length no agitation of the water will produce more; their power is exhausted, as that of the electric eel is exhausted, after a few shocks. You want to know the cause of this phosphorescence? Unhappily the point is still *sub judice*. It is only since the beginning of this century that the attention of naturalists has been fixed upon the *Noctiluca* as sources of the phosphorescence, in all times observed, and in former times attributed to the presence of decaying organic substance, to electricity, to "an absorption of solar light disengaged in the dark." The investigations of M. Quatrefages led him to the following conclusions:

There are two different kinds of phosphorescence observed in the sea. The first is of very brilliant but isolated sparks, and is due principally to Starfishes, Crustaceans, and Annelids. The second is of a general luminous tint, over which are strewed isolated sparks, and is due to the *Noctiluca*. These *Noctiluca* have no special organ which produces the phosphorescence, as the other animals have; but the light emanates from the whole substance of their bodies. Every irritant, no matter of what nature, produces this phosphorescence in them. The phenomenon is not, as in insects, one of combustion; but is intimately connected with the contraction, spontaneous or provoked, of their substance. It is independent of all secretion, and it is probable that the sparks are due to the rupture and sudden contraction of their sarcodic filaments; while the steady light they emit in dying, results from the permanent contraction of this sarcodic substance. — *From Lewes' Sea-side Studies.*